TRAILS FOR ALL PEOPLE

FRIDAY, FEBRUARY 27, 2004 PHOENIX ZOO-The Stone House

Sponsored by the Arizona State Committee on Trails (ASCOT); Bureau of Land Management; City of Phoenix; Maricopa Association of Governments; National Park Service Rivers, Trails and Conservation Assistance Program; and Pinal County Trails Association



Desert Botanical Gardens (web site)











TRAILS FOR ALL PEOPLE

When you look around, it is easy to assume that only a handful of people cannot use trails; especially the persons with disabilities. But did you know that over 17 percent of Arizona's population has some kind of disability, and another 15 percent are seniors? Having a handicap goes beyond wheelchairs and pacemakers. Extra weight (according to the CDC, 30% of Arizonans are over their ideal body weight), pregnancy, smoking, sports injuries, arthritis, heart disease, and caring for infant and toddlers can turn into a handicap when considering using a trail. Physical activity and being in nature preserves health and benefits the community. This conference was designed to help create trails for ALL people to use.

The conference was held at the Phoenix Zoo in Papago Park. This site was chosen because it has extensive bike and foot trails. In the area near the Zoo there are urban fishing ponds that bring in plenty of ducks and other waterbirds with the most interesting species appearing during fall and winter migrations. Both the Zoo grounds the Botanical Gardens are excellent places to study wildlife including many native, non-captive yet approachable species. People can find much of interest in this oasis within the urban area. Besides Papago Buttes and an extensive trail system, Papago Park also includes the Phoenix Zoo, the Desert Botanical Gardens, Papago Golf Course, and a sports complex.



Papago Park (web site)

TRAILS FOR ALL PEOPLE

CONFERENCE AGENDA

General Session

Opening Remarks – Chair of ASCOT Maureen DeCindis, Conference Chair

ADA Trail Design and Guidelines Peter Axelson, Beneficial Designs

Coming of Age: Seniors and Trails Roger Hughes, St. Luke's Health Initiatives

Feliz Paseos Accessible Park Robie Pardee, Pima County

Concurrent Afternoon Sessions

Design Trails and Shared Use Paths Peter Axelson, Beneficial Designs

Mobile Workshops in the Field

Physical Challenges on the Trail Jim Coffman, Coffman Studio

Retrofitting Trails for Accessibility Tom Fitzgerald, City of Phoenix

PETER AXELSON "ADA TRAIL DESIGN AND GUIDELINES"

Peter Axelson, Founder & Director of Research & Development for Beneficial Designs and member of the Access Board. Peter W. Axelson is a nationally and internationally recognized leader and trainer for providing instruction on the Universal Trail Assessment Process (UTAP) and Designing Trails for Accessibility. Mr. Axelson received a B.S. degree in Mechanical Engineering and Product Design in 1979 and a M.S.M.E. degree in Smart Product Design in 1982, both from Stanford University. He is the founder (1981) and the Director of Research and Development at Beneficial Designs, Inc., a rehabilitation engineering design firm that works towards universal access through research, design, and education. He has served on the American Trails Board of Directors, and has been a member of standards committees for the Recreation Access Advisory Committee to the U.S. Access Board (U.S. Architectural and Transportation Barriers Compliance Board) and also the Regulatory Negotiation Committee on Outdoor Developed Area Guidelines.

People use trails to connect to nature, for adventure, exercise, transportation and leisure. Everyone, whether children, people with disabilities, hikers with limited experience or adults with limited mobility enjoy trails. Universally designed trails offer opportunity for different experiences and personal choice in trail use. It allows for a balance between access and environmental protection.

Universal design principles take into consideration the physical, cognitive, emotional, and social changes that each person experiences over the course of a lifetime. The universal design principles include:

Equitable use
Flexible use
Simple and intuitive use
Perceptible information
Tolerance for error
Low physical effort
Size and space for approach and use

According to the Federal Highway Guidelines (FHWA), access should be on all types of trails such as:

Shared-use paths that serve a transportation and recreation purpose by permitting multiple non-motorized users generally in a developed setting in either rural or urban setting.

Recreation trails tend to serve very little transportation purpose, may include motorized users, and may lead to features such as major attractions located in natural settings.

Outdoor Recreation Access Routes connect accessible picnic and camping facilities located in outdoor developed areas and may include motorized users.

Beach Access Routes can be permanent or temporary surfaces placed at beaches where other pedestrian routes are provided.

Access Routes connect parking, building entrances, passenger loading areas and washrooms.

The Universal Trail Assessment Process (UTAP) generates objective information for access and use, construction and maintenance, mapping and interpretation, environmental protection and management, and compliance with design standards. UTAP uses simple equipment to measure trails by length, cross slope, width, grade, surface, features and facilities.

Land managers benefit by using this technique because it provides more trail opportunities with increased user safety and satisfaction, helps with documentation of trail conditions. It also helps with monitoring environmental impact, identification of work priorities, enhancing planning and budgeting of projects, determining compliance with design standards and enhancing search and rescue missions.

Trail Access Information provides objective information that conveys the trail condition (length, cross slope, width, grade, surface, features and facilities) to users. The users benefit from the consistent information that allows for increased independence based on responsible and informed trail selection decisions.

Certain design conflicts will make the trail ineligible for Access:

If 15% of trail length cannot comply because of extreme conditions such as an obstacle 30 inches high, the width of the path is less than 12 inches for 20 feet, the grade and cross slope is greater that 40% for 20 feet.

Substantial harm to significant features that would alter the nature of the setting or purpose. Infeasible terrain, topography or construction practices.

It is important to work to alleviate design conflicts by addressing each design specification separately and provide signage that identifies problem areas.

Recreation Trail Guidelines can be found:

1999 US Access Board: www.access-board.gov

2001 FHWA Design Guidelines: wwwcf.fhwa.dot.got/environmental/rectrails/trailpub.htm

2003 USDA Forest Service: www.fs.fed.us/recreation/programs/accessibility

The Americans with Disabilities Act and Rehabilitation Act require facilities and programs to be accessible. Focus on high profile, high use trails and the first priority and consider access in all trail maintenance and construction. Enhancing access means better protection for the environment. Access benefits all trail users, not just those with disabilities.



Photo by Bob Rink

ROGER HUGHES: "THE COMING OF AGE: SENIORS AND TRAILS"

Roger Hughes, Ph.D. Executive Director, St. Luke's Health Initiatives. St. Luke's Health Initiatives is a public foundation located in Phoenix, Arizona.

SLHI pursues its mission in three general areas:

<u>Community Grants.</u> For community health needs, with a focus on increasing the organizational capacity of health and human service organizations, as well as on promoting grassroots community development.

<u>Medical Assistance</u>. Resources are allocated to direct medical assistance for vulnerable populations through a network of community health partners.

Arizona Health Futures. The health policy and education arm of SLHI whose purpose is to conduct relevant and timely policy research; provide balanced, non-partisan information and perspectives on health issues in Arizona; serve as a convener and forum for the critical discussion of those issues in an independent and policy-neutral setting; and translate good ideas into action through the support of community-based initiatives.

What will it mean for Arizona, in about 2020, when every fourth person is over the age of 60? Baby boomers are the nation's most visible leaders in nearly every field and part of a complex ensemble that will play a substantial role in every level of the community.

The demographics of the future:

Today, 17% of Arizona is over 60 and in 2020 that percentage will be approximately 25%. The number of people in the 85 year + category in 2020 will equal a city the size of Mesa.

The economics of aging will widen the gap between the haves and the have-nots.

Characteristics of tomorrow's older population:

This group is not all the same but have major differences in health, income and interests.

Boomers don't have the Depression era experience. They came of age in the era of growing entitlements and have very high expectations.

Eight out 10 seniors take care of themselves today – an all time high. But the growing numbers of older adults dictate that more people will need expensive critical care.

Boomers are the originators of the "lifestyle" approach. They select a community, an attitude, and a set of specialized services.

Arizona seniors have not been especially politically active with regard to issues such as the environment, health care and their perceived "rights" as older adults. This could be changing, however, as more political, advocacy and service organizations discover their untapped potential.

How does this relate to trails?

Boomers are the first generation to explicitly see and demand the relation of the "built environment" to their perceived well-being.

The problem is that the "built environment" often reflects the political and economic interests of a segmented population.

The idea would be to foster and design a system of "public" trails.

Seniors who are affluent and politically active have the potential to impact the design of the built environment to reflect what they call an "active lifestyle". Recreational trails are an important part of the built environment.

Intelligent design for healthy communities is an important concept. Healthy communities are by definition healthy for everybody with physical, mental, social and cultural well-being. The principles for intelligent design for healthy communities includes:

Integration. Trails should be integrated with other recreational, educational and social resources. Diversity. Seniors will run the gamut from excellent health wanting challenging trails to those with limited physical ability seeking easy trails.

Adaptation. Trail design should promote maximum adaptability, being able to modify trails in response to natural, social and economic changes.

Fitness Profile. Different environments have different "fitness profiles". Trails geared towards an older community would probably have a lower fitness profile than trails design for rugged hikers. Exploration. All intelligent communities encourage maximum exploration and learning. People choose trails versus a walk around the block because of the distinct possibility of exploration and learning something new.

Chunking. Most people live life by breaking it down into "manageable" chunks of experiences, tasks, and goals. Likewise, a trail might be a series of mini-trails or connected trails each with a different experience or fitness profile.

Motivation. Intelligent environments are properly motivational. They invite and inspire participation. Aesthetics are essential when considering designing the trail and benches to enhance the experience.







SENIORS ON THE MOVE

JAN HANCOCK "EQUESTRIAN & PERSONS WITH DISABILITIES"

Jan Hancock is author of the book "Horse Trails in Arizona" by Golden West Publishers, and is currently completing an equestrian design guidelines publication under a contract with the Federal Highway Administration. Jan serves on the national Board of Directors for American Trails and is the president of the Arizona Trail Association, an organization created to develop a 790-mile border-to-border, non-motorized trail for hiking, horseback riding, mountain bicycling, and cross-country skiing. She also serves on the Board of Directors for Arizona State Parks' State Committee on Trails and Arizona State Horsemen's Association. Governor Jane Dee Hull appointed Jan to a five-year term on the 25-member Governor's Growing Smarter Oversight Council in March, 2001. She is also a member of the City of Phoenix Parks and Recreation Board, the City of Phoenix Design Standards Review Committee.

Non-paved, natural surface trails on public lands traditionally pose difficult terrain challenges for people with physical disabilities. In some cases, horses and mules could be the perfect answer for those who want to experience most of our State's trails that are located in natural environments.

People with disabilities have been discovering horseback riding as a way to help them become more mobile on our nation's trails. Many are thrilled to have an opportunity to recreate in outdoor places they've never been able to experience before. Equines are very willing partners in assisting people with disabilities, and they can open a much broader world of recreation to people who have many types of mobility impairment. Horseback riding also helps physically challenged equestrians develop a greater sense of balance and build their confidence.



It is essential to implement some basic planning design guidelines when developing trails for equestrians with disabilities. There are a number of key elements that help make trails more accessible to physically challenged equestrians. Among these are:

Trail treads that are wide enough to permit "side walkers" if they are required. "Side walkers" are people who assist an equestrian with disabilities by walking on either side of a horse or mule to help them maintain their balance.

Special ramps and mounting blocks that permit a person in a wheelchair to move easily out of the wheelchair on to the back of a horse, and at the same level as a horse's back. These are relatively inexpensive and easy to construct.

Detailed maps and route description signage that helps equestrians with disabilities select the most appropriate trail for their ride.

Trails with wide turning radii, which help physically challenged equestrians maintain their balance while negotiating a turn astride a horse. Many states have developed specialized day use and overnight camps for equestrians with disabilities that are designed to accommodate their needs. Mounting ramps, restrooms, and campsites can be designed to be wheelchair-friendly, and wheelchairs can be easily transported to campsite locations by pack stock. Programs such as the Adaptive Riding Institute at Silver Falls State Park in Oregon have regular summer programs to provide horseback riding opportunities for people with disabilities. The president and cofounder of this program, named H.O.R.S.E.S., is physically challenged herself and has invented many adaptive devices for saddles and riders to help equestrians of all ages maintain their balance and be comfortable while riding. The trails in Silver Falls State Park have been designed to meet the needs of equestrians with disabilities.

The Federal Highway Administration will be publishing a book in 2004 titled "Equestrian Design Guidelines for Trails, Trailheads, and Campgrounds" written and illustrated by Jan Hancock, Jim Coffman, ASLA, and Jeff Englemann, ASLA. This publication has a complete chapter covering design elements for equestrians with disabilities, and includes detailed drawings for equestrian ramps and mounting blocks.

ROBIE PARDEE "FELIZ PASEOS, ACCESSIBLE PARK"

Robie Pardee is a Landscape Architect with Pima County Natural Resources Parks and Recreation Department. He has a Bachelor of Arts in Anthropology from the University of Arizona and his MLA in landscape architecture from the University of Arizona. He taught landscape architecture for 4 years at Ball State University in Muncie, Indiana.

In February 1998, the Pima County Board of Supervisors formed a committee to explore the feasibility of acquiring a portion of the Las Lomas Ranch as the site for a park using the concept of universal accessibility.

Pima County acquired a 50-acre Sonoran Desert site in the Tucson Mountain foothills to design and construct a universally accessible natural resource park. The park site is lush desert at the northeast corner of Gates Pass Road and Camino de Oeste, west of downtown Tucson and extends to Tucson Mountain Park. The planning process included an advisory committee representing a broad range of abilities and physical conditions, as well as representatives from accessibility-related programs and agencies. The committee was sensitized to universal accessibility as a more all-inclusive concept and several members were trained in the Universal Trail Assessment Process (UTAP).

The trail assessment and park design process is complete. Everyone, regardless of ability, will be welcome in the park. Designed with both natural tread surface as well as a paved loop trail, the park will provide a range of experiences for trail users with disabilities. The park will include over one mile of native soil tread trails and over a quarter mile of hard surface trails, wildlife observation points overlooking Camino de Oeste Wash, as well as shade armadas and other rest areas. All trails will be signed to show maximum trail grades, cross slopes, surface conditions, and obstacles, enabling prospective hikers to make informed choices about using the trails.

The project is a public-private partnership with donated services of professional consultants. Funding to construct the park is part of the May 2004 county bond election.

WORKSHOPS

There were three workshops scheduled in the afternoon. Peter Axelson presented "Designing Trails and Shared Use Paths for Access/UTAP". The other two workshops were mobile workshops. "Feet On Experience: Physical Challenges on the Trail" and "ADA Trail Design: Retrofit and Maintenance" provided participants with a field experience.

DESIGNING TRAILS AND SHARED USE PATHS FOR ACCESS

Peter Axelson addressed the Federal Highways Accessibility policy. Accessibility is a civil right. The key function of transportation, at its most fundamental level, is to provide basic mobility to society. Therefore, transportation must be accessible to all Americans and legal requirements ensure that people with disabilities are not excluded from facilities and programs.

Beside the fact that it is legally required to provide trails for all users, why create accessible trails? Trails educate users about environmental protection and provide substantial health benefits to them.

Universal design will allow trails to be able to meet the needs of all potential users to the greatest possible extent because the design takes into consideration the physical, cognitive, emotional and social changes that each person experiences over the course of a lifetime.

<u>Universal Design Principle 1: Equitable Use</u>

All Americans should have access to the benefits of trails. Families and friends want to recreate together. There may be conditions that preclude use by some people, for example, if there are natural features that could cause substantial harm, if the trail would alter the purpose of the natural setting, if the trail were in contradiction to certain regulations or statutes or if the terrain were infeasible.

Universal Design Principle 2: Flexible Use

Some people can walk unaided while others use extra equipment. The surface of the trail needs to be firm, stable and preferably slip resistant.

Universal Design Principle 3: Simple and Intuitive Use

The trail needs to be designed to keep users on the right path and there should be a safe path of travel on the trail tread. Keep trails as level as possible without gaps, grates, openings, and protruding objects.

Universal Design Principle 4: Perceptible Information

The trail should be easy to see or hear, easy to understand and easy to find. Signage helps people find their way on the trail. A sign at the trailhead should indicate that the trail complies with ADAAG.

<u>Universal Design Principle 5: Tolerance for Error</u>

People vary tremendously in previous trail experience and skill. Create trails with clear tread width and edge protection.

Universal Design Principle 6: Low Physical Effort

Many Americans are overweight and many overestimate their own fitness level. Most people do not want a strenuous workout. Therefore, trails should be designed with no more than 30% of the total grade not exceeding 8.3% elevation.

Universal Design Principles 7: Size and Space for Approach and Use

Minimize the environmental impact by enabling users to stay on the trail. Trails always have two-way traffic even if they are signed one-way. Every thousand feet, clear a 5' x 5' passing space.

<u>Understanding the User</u>

The typical pedestrian acts as though a spatial bubble exists around them as they walk. Therefore, trail design must take into consideration factors such as function. Consider the variability of walking speed, height and width of individuals, reflex and coordination, attention span, cognitive abilities, problem solving skills, literacy, vision and hearing capacity and mobility aids such as wheelchairs, scooters, prosthesis and walking aids. The greatest barriers to trail use are lack of knowledge about the actual ontrail conditions and the lack of knowledge about where access is possible.

Design Process

Consider the trail users characteristics including size, weight, walking speed, balance and agility skills, knowledge of personal limits. Also, take into consideration functional assumptions such as mobility, vision, hearing, hand function, endurance, age, and long and short-term disabilities. Identify and evaluate specific characteristics i.e. is the trail is luxurious or utilitarian, expensive or low budget, versatile or specific use, individual or group, active or passive, independent or dependent, and integrated or segregated? The design process also includes:

Listen to what you are being asked to do.

Let go of preconceived ideas of what the best solution is.

Gather information from the best sources.

Reflect on the decisions and recommendations.

Wait for consistency in thoughts and feelings.

Act on the best recommendation.

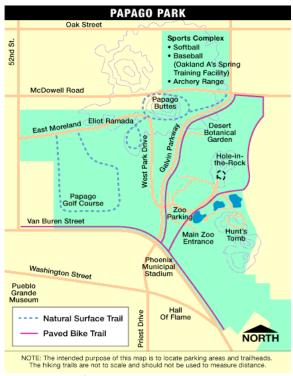
Clearly communicate the outcome.



Photo by Bob Rink

MOBILE WORKSHOPS:

There were two workshops held in Papago Park to give the participants field experience.



Map of Papago Park (web site)

FEET-ON EXPERIENCE: PHYSICAL CHALLENGES ON THE TRAIL

Jim Coffman, ASLA, Coffman Studio. Jim Coffman is a registered landscape architect in private practice with over 19 years of professional experience emphasizing open space, parks and multi-modal planning and design. Previous experiences includes: Parks/Trails Planner for the City of Scottsdale; City of Phoenix Landscape Architect; Co-Chair of the 1995 Arizona State Trails Conference and the 1998 National Trails Symposium; Project Manager for the Maricopa Association of Governments Pedestrian Plan 2000, the City of Scottsdale Trails Master Plan, and the City of Glendale Open Space and Trails Master Plan. Jim has a B.S. in Business Management and Administration from Indiana University and a Master of Landscape Architecture from Ball State University.

Sandy Muñoz-Weingarten, Recreation Coordinator with the City of Phoenix Parks and Recreation Department and facility manager of the South Mountain Environmental Education Center. Previous experience includes: Adaptive Recreation Services (ASR) developing and operating the accessible outdoor adventure programs; Project Director for River Rampage, a whitewater rafting program for teenagers with disabilities and their at-risk peers; co-manager for Mainstream Expeditions for adults with disabilities; Park Ranger for the National Park Service as Sign Language Interpreter at Grand Canyon National Park and at Rocky Mountain National Park in Colorado.

Elizabeth Gilray, CTRS, City of Phoenix, Daring Adventures Project Coordinator. Develops and implements six outdoor recreation programs for people with disabilities: adaptive cycling, adaptive kayaking, sled ice hockey, cross-country skiing, backpacking and hiking and wilderness camping.

"Physical Challenges on the Trail" provided an opportunity to see first-hand, personal mobility challenges in the natural and built environment of a public park. The mobile workshop first focused on having participants understand that all people at one time or another will have to deal with a physical limitation, either for themselves, friends or family. These disabilities can be long or short term involving vision or hearing loss, decreased mobility and flexibility, lack or loss of information processing abilities, poor night vision, sensitivity to glare, weakness, and/or paralysis.

The physical environment effects an individual's ability to build and maintain independence and overall quality of life. There are things within the control of planners, programmers and administrators to ensure that a site allows this independence to continue in spite of a personal physical limitation.

The group toured Papago Park's picnic areas, parking lots and trails to discuss the difficulties, challenges and barriers to maintaining independence as well as explored potential solutions. Attendees were encouraged to use devices such as a variety of wheel chairs and walkers to simulate physical limitations. Features discussed in the park were the relationships of the parking areas to picnic tables, trails, restrooms and phones; visual sight lines between these same types of amenities; trail surfaces and widths; level of lighting; readability, color, size and placement of signs; vegetation clearances along trails; slopes of trails, sidewalks and other pedestrian routes (sometimes on the park drive); lack of crosswalks and pavement markings; occurrence and location of amenities such as drinking fountains, shade, benches, emergency phones, restrooms and trash cans. Attendees also expressed the difficulties of using the wheel chair and walker devices, in terms of the effort required to go up relatively small slopes, and the danger of hitting uneven pavement surfaces. The tour concluded with participant discussion that reaffirmed the fact that any improvements we can make in an environment addressing physical challenges ultimately will benefit each of us.

ADA TRAIL DESIGN: RETROFIT AND MAINTENANCE

Tom Fitzgerald, Trails Coordinator for the City of Phoenix is responsible for the planning, design, and implementation of over 400 miles of trail within the urban and mountain preserve system. He received his Bachelors degree in Forestry/Recreation Management from Virginia Tech. He worked for the U.S. Forest Service for 8 years, with most of his time spent locally on the Tonto National Forest, where his main responsibilities became trail maintenance and construction, and wildland fire fighting. He also spent several summers on the Mt. Hood National Forest in Oregon and the Coronado National Forest just south of Tucson performing similar duties.

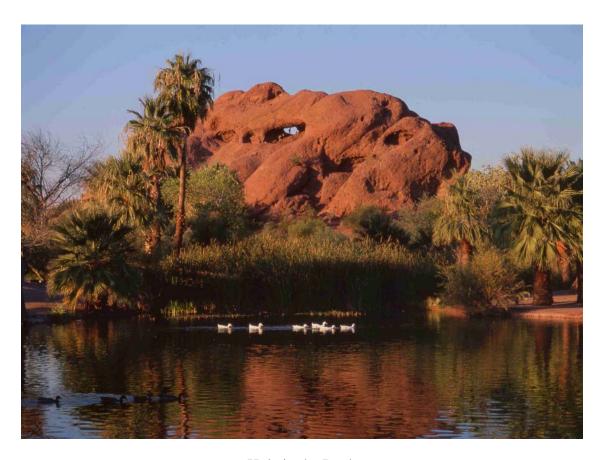
Tom Fitzgerald led the mobile workshop designed to help the participants understand how existing trails can be altered, sometimes in minimal ways, to accommodate all types of trail users. He pointed out how changing the "little details" could make or break a trail experience for someone who is physically challenged.

The route chosen was the "Hole in the Rock" trail. There was a 50-yard section of trail that was analyzed for excessive grade, drainage, erosion, cross-slope of the trail, vertical obstructions such as large rocks, and trail width.

Tom Fitzgerald pointed out that if the initial trail design and construction is done properly the trail would meet all the ADA requirements. A good trail designer assesses contour so that the trail is laid in with the contour of the mountain and runs perpendicular to the slope. The trail will follow that grade as it goes around the mountain in switchbacks to minimize incline utilizing rolling grade dips to deal with drainage issues. Rolling grade dips produce a short area where the trail is depressed slightly so water will collect and run off so as to not erode the trail. Creating the trail to the contour also minimizes long runs with

excessive grade, and developing relatively flat cross slopes (the slope of the trail from the uphill side to the outside of the trail at a 2-3% maximum slope).

In many situations, trails already exist that will need to be retrofitted. Often times, retrofitting the trail can happen while providing basic maintenance such as moving rocks, branches, debris or building water bars or drain dips for erosion issues. Those solutions will also help the trail meet the new proposed recreational trail standards. In some cases some trails may need to be re-routed or re-construction to meet grades and cross slope. Making the trails sustainable will more than likely meet the recreational standards.



Hole in the Rock
Photo by Bob Rink

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